Division of State Radio

ND Department of Emergency Services

Ensuring a safe and secure homeland for all North Dakotans.

Division of State Radio

- Department of Emergency Services/Division of State Radio
  - Advisory group (Statewide Interoperable Executive Committee - SIEC)
  - Communication Center
  - Frequency Management
  - Agency Information Technology
  - Statewide Message Switch Management
  - Management of the Public Safety Communications Infrastructure

Division of State Radio

- Frequency Management
  - One (1) Employee
  - Statewide Frequency Management Plan (2010)
  - Statewide Signal Operating Instructions (2010)
  - Public Safety radio reprogramming.
  - Narrow Banding preparation and planning (January 1, 2013)

Division of State Radio

- Agency Information Technology
  - Four (4) Computer Specialists
    - One (1) Supervisor
    - Three (3) - (2) Specialists (1 Temp)
  - Responsible for all IT projects/support for DES
    - 24/7 On Call for Department
  - Support the mobile CAD clients and vendor support
  - Manage projects to improve the Department's technology (reverse 911, emergency notification systems, improve infrastructure, etc.)

Division of State Radio

- Statewide Message Switch Management
  - Two (2) Administrative Staff Officer III positions
    - State Informational Security Officer (ISO)
    - State Criminal Justice Information Systems Officer (CSO)
  - Training and audit responsibility for all NCIC users (4,000 +). Train over 300 – 500 users per year.
  - Switch transactions:
    - 2012 – NCIC (Input 19,353,010/Output 21,692,682)
           NLETS (8,181,594)
    - 2013 to Date - (Input 15,813,014/Output 17,887,652)
           NLETS (6,938,955)

Division of State Radio

- Other Missions:
  - Lead North Dakota Statewide Baseline Mapping Project
  - Member of the North Dakota CJIS Board
  - Member of the Statewide Broadband Mapping project.
  - Federal Statewide Interoperability Coordinator (SWIC)
  - Department COOP/COG representation
  - ITD Committees
    - Enterprise Architecture Teams (security and desktop)

Statewide Baseline Map Imagery

New Imagery

Current Imagery

Division of State Radio

- Infrastructure Timeline
  - 1951 - State Radio established
  - 1976 to 1977 - Motorola Centracom VHF system and move to EOC (VHF 35 tower 300w analog system)
  - 2004 to 2006 - Motorola Gold Elite VHF station and tower equipment upgrade (P25 Digital/Analog Narrow Band capable reduction in power to 100w)
  - 2012 – Zetron Max (IP based and ability to add additional towers). Converted channels 1 and 2 to digital and Narrow Banded channel 3.

Division of State Radio

- Current System:
  - IP connectivity on a designated IP address
  - Ability of connect to the system from any ITD access point
  - Back-up system located at a remote location (full back-up)
  - State Radio channels
    - Channel 1 Digital (Local Jurisdiction Usage)
    - Channel 2 Digital (State Emergency Services)
    - Channel 3 Narrow banded analog (Mutual Aid)

Division of State Radio

- Communication Center
  - Thirty-two (32) employees
  - 24/7 operations
    - 170,908 CAD events for Service (2012)
    - 153,202 CAD events for Service (2013 to date)
  - Primary dispatch for State Public Agency Response agencies and Federal LE.
  - Primary 911 dispatch for 24 of 53 counties January 2013.
  - Statewide public safety communication leadership.
  - Hazardous condition notification
  - Computer Aided Dispatch (CAD) (March 2010)
    - Joint project with Highway Patrol

State/NCIC (0)   I/Dispatcher [whaas]

Workstation Unit Event Info View Inquiry Tools Database Help

New   Update   Overdue   Unit Alarm   Background   911   Loc Call   Message (0)   Broadcast   Ev (0)   SS (0)

Active 1 - I/Dispatcher Event Information

Event Information

○ Create ○ Update ○ Select

Loc:
Type:
Subtype:
Name: Phone:
City: Alt Phone:
Call Src: Class:
Cross St:

Accept Event
Add Unit Hist
Closed
Scheduled
Abandon
Advised
Print

Stacked
Prev
Next

History
Prev
of
Next

Add:
Disp:
Enr:
Arrv:

Log On Unit   Field Event   Add Comments
Broadcast   Event Search   Dispatch Assign

County:
0 Alarm Level

NDDES
Homeland Security
State Radio

Unit   St

☑ System   ☑ Common

Agency   R   P   Loi Until   Area   Group   Event Number   Type   S
EMS
FIRE
HP
PD
SO
STATE

Ev SS Inf
Supp Info
Chronology   Cross Ref
Unit Info   Graphics
Preview Info

Orig Term:

AVAILABLE UNITS - [Total: 8]

Available units

Bismarck. Fargo. Minot. Dickinson. Grand Forks. Stations. All.

Unit	Type	St	Location	Event
740	GF	AV		
230	HP	AM		
246	HP	AM		
329	HP	AM		
4272	SO	AV	1092 ON CALL	SPEC...
4352	SO	AV	1092 ON CELL	SPEC...
4381	SO	AV		
4401	SO	AV	1092 ON CALL	SPEC...

Map View (338.96 mi) - [Total: 329]

Map View

PENDING EVENTS

Pending Events

Bismarck Fargo Minot Dickinson Grand Forks All

Agency	P	S	Time	Ov...	Location	Event Type	Event Su...	Event Number	Beat	DGroup	DA Unit	Hel...

UNIT/EVENT STATUS - [Total: 3]

Unit/Event Status

Bismarck Fargo Minot Dickinson Grand Forks All

Unit	Type	St	Location	Event	Ev Subtype	Event Number	Time	Ove...	Ev Ag	Ev Bea
6176	AMB	AR	@7014522326_WISHEK WISHE...	MED		E10041700134	:03		EMS	WISHE
6330	AMB	ER	@MED CENTER ONE : LL(-100:...	TRNSP		E10041700137	:10		EMS	
265	HP	AR	LL(-100:45:16.3877,46:49:52.65...	1039		E10041700140	:00	:-10	HP	

Ready   10:49:59 AM

Start   Intergraph - I/Dispat...   I/Informer   10:49 AM

State Communication System

North Dakota Emergency Communications Coverage
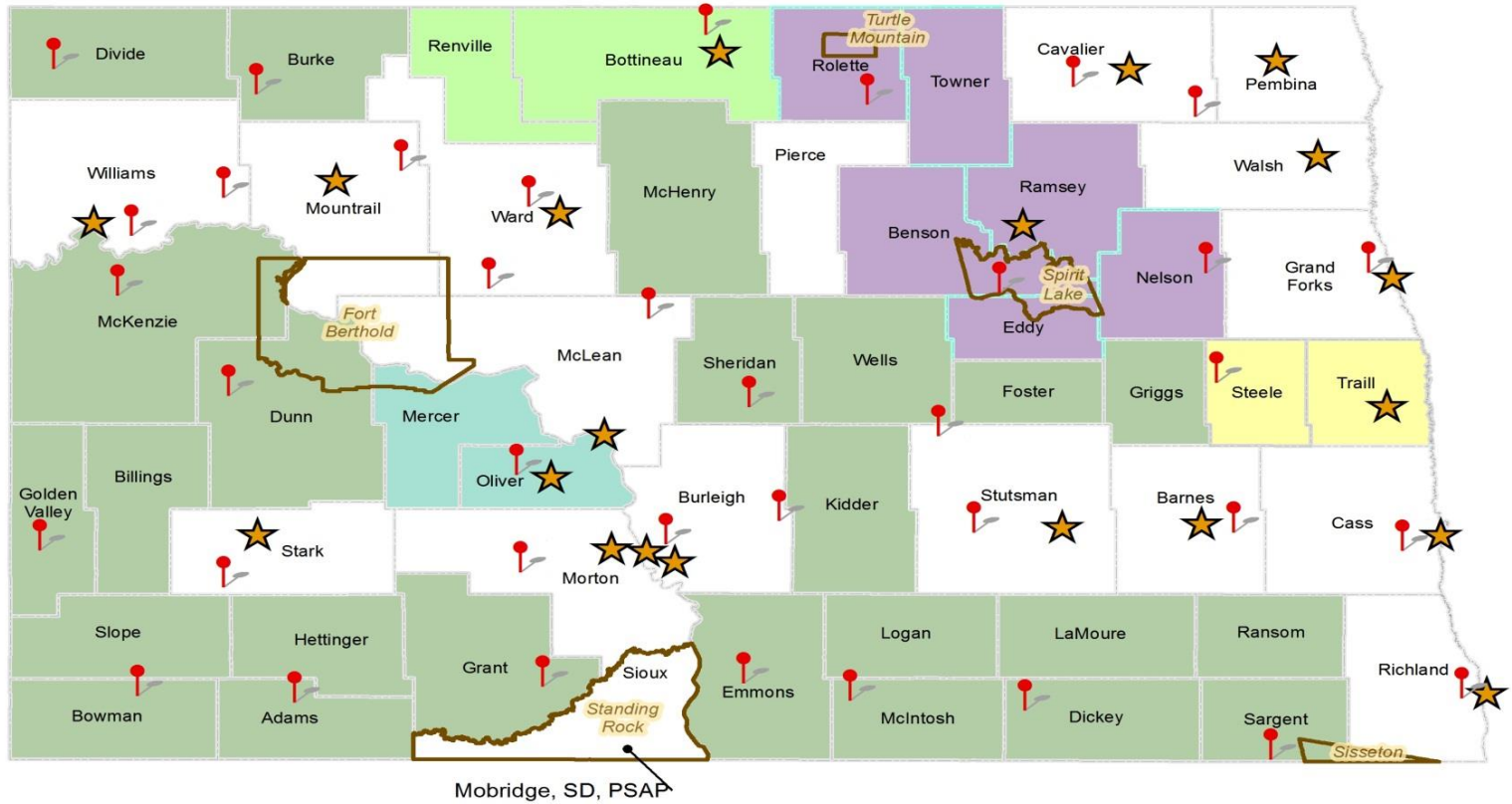
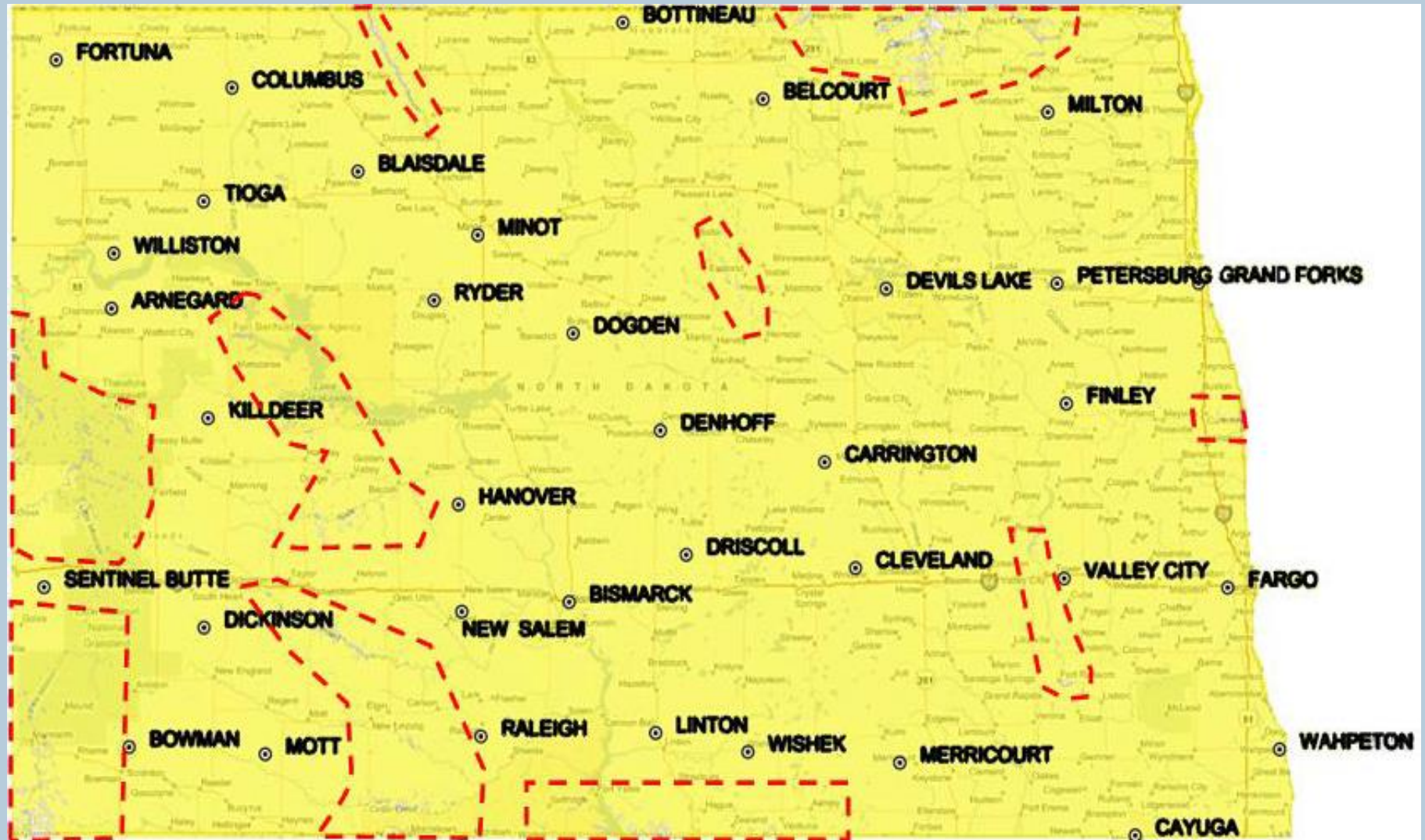# Division of State Radio

Old System Backroom
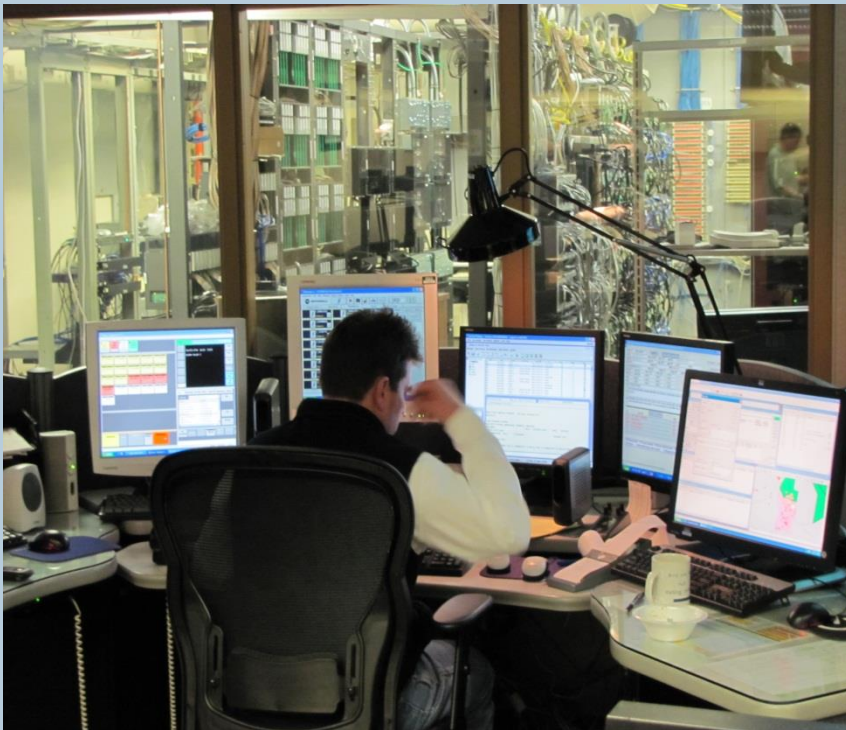
New System Backroom

Division of State Radio

- Management of the Public Safety Communications Infrastructure
  - Supported by DES IT staff and DOT
  - Thirty six (36) State Radio towers
    - Shared infrastructure with DOT
    - Connected to Bismarck DES through T-1 or Fiber lines
    - Generator power backup at tower sites
  - Tower Gap Study (2010)
    - Twelve (12) gap areas identified
    - New Computer Electronic Base (CEB) required

Possible Communications Problem Areas

Possible New Sites – Mobile Coverage
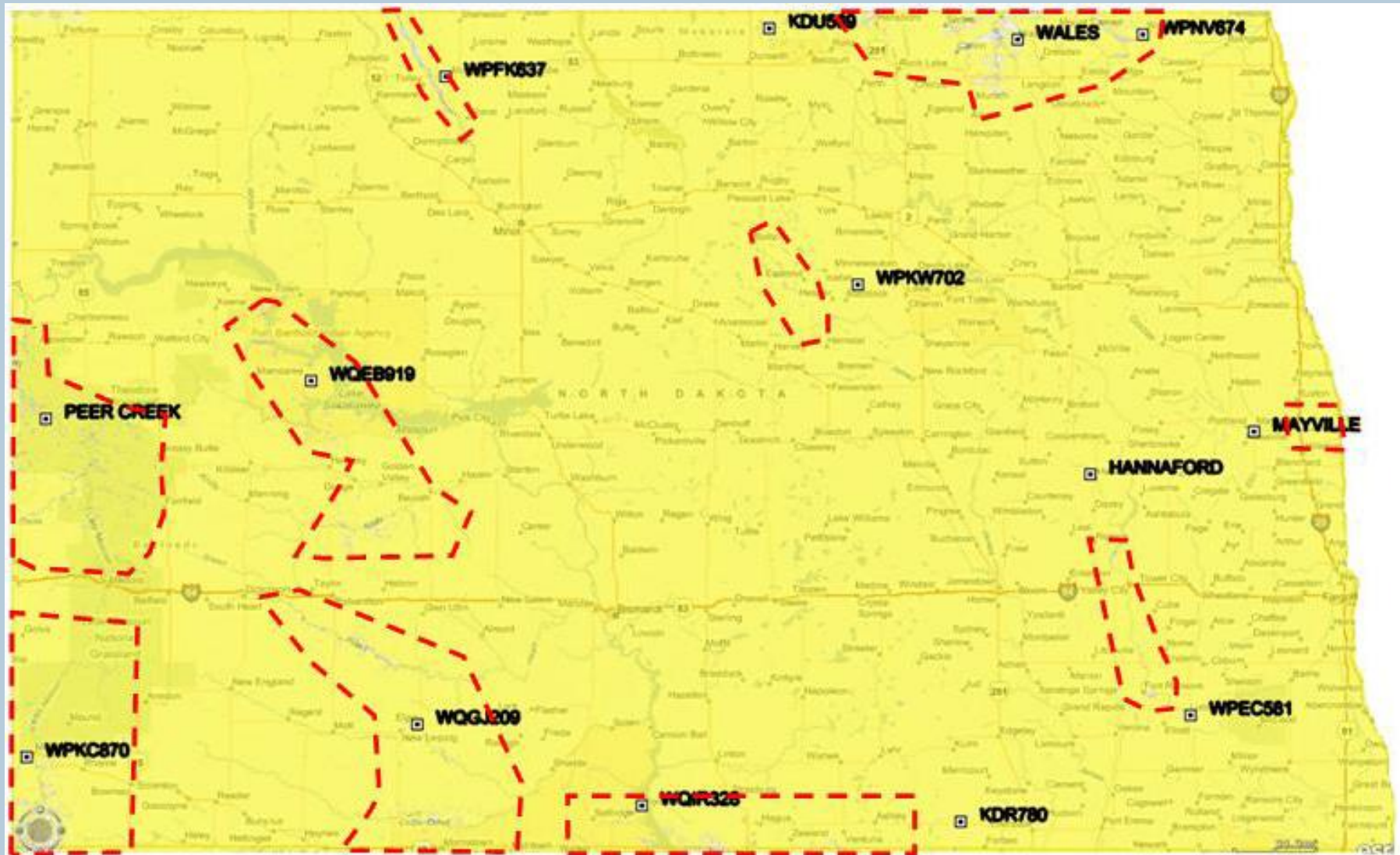
Division of State Radio
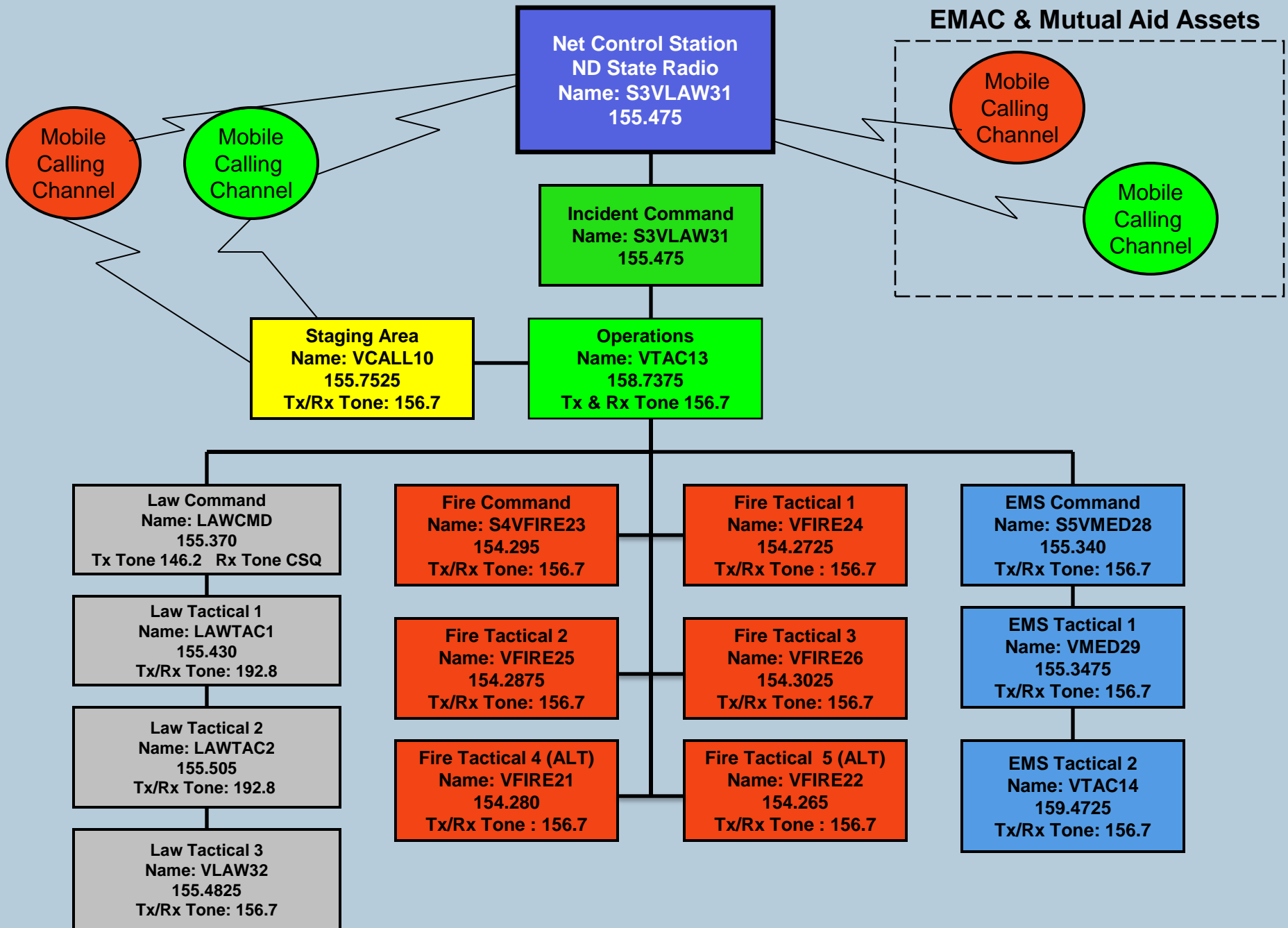
October 14, 2013

State Radio Communication Gap Areas

Division of State Radio

- Emergency Response:
  - Central Public Communication Center for ND
  - Communication Liaisons (ComL)
  - Portable Gateways/Towers
  - Coordination of Signal 100 response
  - Emergency after hours contact for several State Agencies
  - Back-up personnel and support for the EOC

STATEWIDE INTEROPERABILITY BANK/ZONE 5				
	Rx/Tx FREQ	Tx/Rx CTCSS Tone	Primary/Intended Use	Common Name
CH1			**Local Dispatch Common Channel**	
CH2	154.935 151.460	192.8	State Radio Channel 1 (Repeatable)	ST-1 LGR
CH3	**155.475**	**156.7**	**State Radio NCS and Incident/Unified Command Net**	**S3VLAW31**
CH4	151.1375	156.7	Incident/Unified Command Net (Alternate/Spare)	VTAC11
CH5	154.4525	156.7	Incident/Unified Command Net (Alternate/Spare)	VTAC12
CH6	158.7375	156.7	Operations Section Chief Net	VTAC13
CH7	155.7525	156.7	Staging Area Manager Net	VCALL10
CH8	155.370	146.2/CSQ	Law Command (Lead Tactical Law Enforcement Official)	LAWCMD
CH9	155.430	192.8	Law Tactical 1 (Law Division/Branch/Group)	LAWTAC1
CH10	155.505	192.8	Law Tactical 2 (Law Division/Branch/Group)	LAWTAC2
CH11	155.4825	156.7	Law Tactical 3 (Alternate/Spare)	VLAW32
CH12	154.295	156.7	Fire Command (Lead Tactical Fire Official)	S4VFIRE23
CH13	154.2725	156.7	Fire Tactical 1 (Fire Division/Branch/Group)	VFIRE24
CH14	154.2875	156.7	Fire Tactical 2 (Fire Division/Branch/Group)	VFIRE25
CH15	154.3025	156.7	Fire Tactical 3 (HazMat)	VFIRE26
CH16	154.280	156.7	Fire Tactical 4 (Alternate/Spare)	VFIRE21
CH17	154.265	156.7	Fire Tactical 5 (Alternate/Spare)	VFIRE22
CH18	155.340	156.7	EMS Command (Lead Tactical EMS Official)	S5VMED28
CH19	155.3475	156.7	EMS Tactical 1 (EMS Division/Branch/Group)	VMED29
CH20	159.4725	156.7	EMS Tactical 2 (EMS Division/Branch/Group)	VTAC14
CH21	155.160	156.7	Search and Rescue (SAR) Ground Operations	SARWFM

Net Control Station
ND State Radio
Name: S3VLAW31
155.475

EMAC & Mutual Aid Assets

Mobile Calling Channel

Mobile Calling Channel

Mobile Calling Channel

Mobile Calling Channel

Incident Command
Name: S3VLAW31
155.475

Staging Area
Name: VCALL10
155.7525
Tx/Rx Tone: 156.7

Operations
Name: VTAC13
158.7375
Tx & Rx Tone 156.7

Law Command
Name: LAWCMD
155.370
Tx Tone 146.2   Rx Tone CSQ

Fire Command
Name: S4VFIRE23
154.295
Tx/Rx Tone: 156.7

Fire Tactical 1
Name: VFIRE24
154.2725
Tx/Rx Tone : 156.7

EMS Command
Name: S5VMED28
155.340
Tx/Rx Tone: 156.7

Law Tactical 1
Name: LAWTAC1
155.430
Tx/Rx Tone: 192.8

Fire Tactical 2
Name: VFIRE25
154.2875
Tx/Rx Tone: 156.7

Fire Tactical 3
Name: VFIRE26
154.3025
Tx/Rx Tone: 156.7

EMS Tactical 1
Name: VMED29
155.3475
Tx/Rx Tone: 156.7

Law Tactical 2
Name: LAWTAC2
155.505
Tx/Rx Tone: 192.8

Fire Tactical 4 (ALT)
Name: VFIRE21
154.280
Tx/Rx Tone : 156.7

Fire Tactical 5 (ALT)
Name: VFIRE22
154.265
Tx/Rx Tone : 156.7

EMS Tactical 2
Name: VTAC14
159.4725
Tx/Rx Tone: 156.7

Law Tactical 3
Name: VLAW32
155.4825
Tx/Rx Tone: 156.7

Portable Communication Towers

- Two (2) tower antenna trailers containing gateway unit

- Need
  - Deployable communication asset
  - Backup system to replace a state/local communication tower in an emergency
  - Gateway system for interoperability in emergencies

Gateway

- ACU-100

- Six (6) Radio Interface Modules
  - 3 - P25 50w VHF
  - 2 - P25 50w 700/800 MHz
  - 1 - 50w UHF

- Laptop computer and software to program the radios

Antenna

Tower Extension

Tower Primary

Division of State Radio

- Since 2009, the Department has allocated:
  - $5,096,865 for radio equipment
  - $1,254,701 for radio programming
  - Thirty six (36) training exercises were held statewide to test communication operations
    - four (4) were conducted by the Department
    - thirty two (32) conducted by local entities.

Division of State Radio

- The following challenges presented by narrow banding have prolong a smooth transition.
  - Reduced range caused by reduces operation power (MHz)
  - Digital radio operational changes creating a learning curve
  - Improper programming by radio vendors/agency personnel
  - Radio manufacturing defects

Division of State Radio

- Narrow banding assistance
  - State Radio is adding additional tower infrastructure (study recommendations)
  - Training
    - Radio 101 – classroom four (4) phase program or online three (3) phase program
    - Radio Usage Guide (Digital/Analog tips)
    - North Dakota Public Safety Communication General Usage Guide (April 2012)
    - Frequency Management and Signal Operating Instructions Guide
  - State Radio assists users and vendors with programming, licensing and radio checks
  - Assist with the deployment of State's mobile CAD for another communication asset

Questions